1. For use in transforming colors between color imaging systems, a color mapping method comprising:

using forward transformation profiles that characterize the color imaging systems to generate respective sets of device-independent color values for the color imaging systems;

calculating color conversions by recursively reducing differences between the sets of device-independent color values; and

constructing a color map describing a relationship between the color imaging systems using the color conversions.

2. A color mapping method, according to claim 1, further comprising recursively reducing differences between black channel information.

3. A color mapping method, according to claim 1, further comprising using an error function for calculating the color conversions.

4. A color mapping method, according to claim 1, further comprising configuring at least one of the profiles

to account for certain perceptual effects on color appearance.

5. A color mapping method, according to claim 1, wherein the color map comprises at least one of the following: a lookup table, and an equation.

6. A color mapping method, according to claim 1, further comprising:

storing the color map;

detecting respective types of color imaging devices between which a color transformation is to be performed; and

in response to the detected types, selecting a stored color map.

7. For use in transforming colors between source and destination color imaging systems, a color mapping method comprising:

using profiles that characterize the color imaging systems to generate device-independent color values for the source color imaging system, the device-independent color

values having a same dimensionality as the source color imaging system;

using the profiles to perform a color conversion for converting the device-independent color values to device-dependent values of the destination color imaging system; and

using the color conversion to define a color map for transforming colors between the color imaging systems.

8. A color mapping method, according to claim 7, wherein the color conversion is performed at least twice.

9. A color mapping method, according to claim 7, further comprising:

using the color conversion to evaluate its accuracy at least once; and

revising the color conversion at least once to improve its accuracy.

10. For use in transforming colors between source and destination color imaging systems, a color mapping method comprising:

(a) using profiles characterizing the color imaging systems to generate device-independent color values for the source color imaging system, the device-independent color values having a same dimensionality as the source color imaging system;

(b) using the profiles to perform a color conversion for converting the device-independent color values to device-dependent values of the destination color imaging system;

(c) using the color conversion to improve the accuracy of the color conversion relative to a quality threshold;

(d) returning to step (c) until the color conversion satisfies the quality threshold; and

(e) using the color conversion to define a color map for transforming colors between the color imaging systems.

11. For use in transforming colors between color imaging systems, a color mapping arrangement comprising:

means for using forward transformation profiles that characterize the color imaging systems to generate

respective sets of device-independent color values for the color imaging systems;

means for calculating color conversions by recursively reducing differences between the sets of device-independent color values; and

means for constructing a color map describing a relationship between the color imaging systems using the color conversions.

12. For use in transforming colors between first and second color imaging systems respectively using first and second color coordinate systems, a color mapping method comprising:

(a) generating first device-independent color coordinates as a function of color coordinates in the first color coordinate system;

(b) estimating preliminary color coordinates in the second color coordinate system;

(c) generating second device-independent color coordinates as a function of the preliminary color coordinates;

(d) adjusting the preliminary color coordinates to reduce an error between the first and second device-independent color coordinates;

(e) returning to step (a) until the error satisfies a quality threshold; and

(f) constructing a color map describing a relationship between the first and second color imaging systems as a function of the adjusted color coordinates.

13. A color mapping method, according to claim 12, further comprising using the color coordinates in the first color coordinate system to estimate the preliminary color coordinates.

14. For use in transforming colors between color imaging systems, a color mapping arrangement comprising:

a computer arrangement, programmed to

use forward transformation profiles that characterize the color imaging systems to generate respective sets of device-independent color values for the color imaging systems,

calculate color conversions by recursively reducing differences between the sets of device-independent color values, and

construct a color map describing a relationship between the color imaging systems using the color conversions; and

a memory, configured and arranged to store the color map.

15. A color mapping arrangement, according to claim 14, wherein the computer arrangement is further programmed to use an error function for calculating the color conversions.

16. A color mapping arrangement, according to claim 14, wherein the computer arrangement is further programmed to configure at least one of the profiles to account for certain perceptual effects on color appearance.

17. A color mapping arrangement, according to claim 14, wherein the computer arrangement is further programmed to construct at least one of the following: a lookup table, and an equation.

18. A color mapping arrangement, according to claim 14, wherein the computer arrangement is further programmed to

detect respective types of color imaging devices between which a color transformation is to be performed, and

in response to the detected types, select a stored color map.

19. For use in transforming colors between color imaging systems, a data storage medium storing a computer-executable program that, when executed,

uses forward transformation profiles that characterize the color imaging systems to generate respective sets of device-independent color values for the color imaging systems;

calculates color conversions by recursively reducing differences between the sets of device-independent color values, and

constructs a color map describing a relationship between the color imaging systems using the color conversions.

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20. A data storage medium, according to claim 19, wherein the computer-executable program recursively reduces differences between black channel information.

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21. A data storage medium, according to claim 19, wherein the computer-executable program uses an error function for calculating the color conversions.

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22. A data storage medium, according to claim 19, wherein the computer-executable program configures at least one of the profiles to account for certain perceptual effects on color appearance.

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23. A data storage medium, according to claim 19, wherein the computer-executable program generates at least one of the following: a lookup table, and an equation.

24. A data storage medium, according to claim 19, wherein the computer-executable program:

stores the color map;

detects respective types of color imaging devices between which a color transformation is to be performed; and

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in response to the detected types, selects a stored color map.

Add #3

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